AN

ADDRESS

TO THE

Right Hon^ble^ the LORD-MAYOR,

THE

Worſhipful the ALDERMEN,

AND

COMMON-COUNCIL,

OF THE

CITY of *LONDON*,

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ON THE

Importance and great Utility of CANALS in general;

THE

Advantages which may fairly be expected from the CANAL
now propoſed to be made from *Waltham-Abbey*;

AND THE

Neceſſity of promoting, near the Metropolis, ſuch
Improvements as are now carrying on in the
more diſtant Parts of this Kingdom,

As being the true Means of preſerving to the PORT of
LONDON, that Superiority in Foreign as well as
Country Trade, which it has hitherto enjoyed.

By JAMES SHARP.

To the Right Honourable the LORD-MAYOR, the Worſhipful the ALDERMEN, and COMMON-COUNCIL of the City of *LONDON*.

MY LORD and GENTLEMEN,

Benefit to Out Ports.

No ſuch Works near *London*.

HAVING for ſome Years paſt, with great Satisfaction, obſerved the rapid Progreſs of the Canal Navigations, that have been made in ſeveral Parts of this Kingdom, and, with particular Pleaſure, travelled over many of thoſe that are compleated, and others that are under Execution; and having viewed many of the prodigious Works of Art upon them, I could not poſſibly avoid a frequent Conſideration of the great Advantages ariſing therefrom to the Kingdom in general, but more eſpecially to all thoſe Countries through which they paſs, and the three great Ports of *Briſtol*, *Liverpool*, and *Hull*, which will, in a very ſhort Time, be united by inland Navigations. *Briſtol* and *Hull* are already joined; and one Year more will, in all Probability, make a Finiſh to the Tunnell at *Harecaſtle-Hill*, which will unite *Liverpool* to the other two: And though it certainly will always be a great Pleaſure to me, to promote ſuch publick Works as are for the Benefit of my Country in general; yet, as a Citizen of *London*, I cannot forbear lamenting, that no ſuch Works are forwarded in this Part of the Kingdom.

Reading Canal.

Rights of the City defended.

London in Poſſeſſion of Plans.

It is true, that a few Years ago an Attempt was made for bringing a Canal from *Reading* to *London*, and though it miſcarried at that Time, through an ill-judged and intereſted Oppoſition, yet, the Rights of the City of *London* were nobly defended in Parliament, by ſeveral very worthy Members of the preſent Court of Aldermen, *&c.* and I truſt, that it will not be many Years before it will be again revived, and the City of *London* be amply repaid the Expence that has been ſuſtained on that Account: For we are now in Poſſeſſion of ſuch Plans for the compleating this Work as can never be forgotten, when Works of this kind are in Agitation. A full and particular Account of this Matter I am ready to enter upon, whenever it is required by the Court of Common Council.

Though Canal Navigations ſhould ſeem to require very little to be ſaid in favour of them, yet, as they are but little known in this Part of *England*, and eſpecially near *London*, I thought it right to lay before you ſome Remarks concerning their general Utility.

General Thoughts on Trade.

The Cauſe why.

Trade is truly honourable when it conſiſts in the mutual Exchange of the Produce of different Countries, whereby the Wants of one are ſupplied by the Superfluities of another; and nothing can produce ſuch Trade, but an eaſy Conveyance from one Part to another. The Trade of *England*, except what is carried Coaſtways, is chiefly Foreign; and the Sea is the Medium through which it is conveyed to every Part of the Globe; but our Inland Trade, for want of ſuch eaſy Communication, is ſmall indeed, and for the ſame Reaſon, great Part of our inland Country is uncultivated, as the Expence of bringing to Market, would frequently be more than the Value of the Produce: It would be eaſier, perhaps, to convey many kinds of heavy and bulky Commodities to the Coaſts of the *Indies*, than to or from ſome Parts of this Iſland : But Canals will produce an intercourſe with the moſt remote Part of our Country, and are neceſſary for the well being of the Community at large : They will be intrinſically to us, what the Sea is, diffuſively to the whole World ; and in Proportion as the inland Parts of our Country are rendered plentiful, populous, and thriving, will our Trade to diſtant Parts of the Globe revive and flouriſh : Nothing can be more evident than this ; and it muſt be apparent to every one, that the Advantage gain'd to the *out Ports* already mentioned; muſt be a material Loſs to the Citizens of *London* : Shall we not then endeavour to keep up that Superiority in Trade, which *London* has ever had from the early Ages ? But this will be impoſſible, if we do not make our Improvements equal to theirs.

Loſs to the Port of *London.*

The Remedy

Wretched State of the Port of *London.*

Our Port, once the nobleſt, perhaps, in the whole World, is greatly injured by many Cauſes. Tideway Navigations, according to the Nature of things, choak up in Time, and become ſhallow, by the perpetual waſhing down of Floods from the Rivers above ; and from the City of *London* ſuch a Quantity of Soil and Rubbiſh is continually carried into it, by the Sewers, as is, of itſelf, prodigious, and ſuch as can never be prevented ; but above all, ſuch is the great Contraction of the Port, from *Weſtminſter* to *Limehouſe*, by Embankments, by Encroachments, and the ill-judged manner of forming our Cauſeways, from the Stairs to low Water Mark, that the Port of *London* is much upon the Decline, and the Inconveniences of it multiply very faſt, inſomuch that it is thought not leſs than thirty thouſand Pounds-worth of Cables are conſumed in the Winter Months, by the Rapidity of the Tides and Land Floods, there being no Eddy Waters, for Ships and other Veſſels to lie in : it is no uncommon thing to ſee whole Tiers of Ships forced from their Moorings one upon another, and ſeldom a Tide paſſes without Accidents by Veſſels running foul of others, in their Paſſage both upwards and downwards, tearing and breaking away every thing before them ; and almoſt every Winter, for many Years paſt, has afforded melancholy Scenes, of Veſſels being wrecked and entirely loſt, even in our very Port.

Wretched State of the *Thames* Navigation upwards.

Thus we ſtand with regard to our Port ! and our River Navigation upwards is in as bad a Condition ; neither can it ever be made much better ; for Locks and Dams are Impediments, which, like the Tideway, will, in Time, accumulate, and render it broad and ſhallow, by reducing the natural Fall or Deſcent into flat Ground, ſo as to form a Step, as it were, at every Lock. Now, though I am averſe to Embankments in the Tideway, ſure I am, that Embankments and Contraction is the only Method that can be taken to preſerve a Stream Navigation ; but even this will not make a River good for Paſſage upwards. The Labour of paſſing againſt the Stream can never be taken away, nor the meandering Length ſhortened. A River Stream is the natural Drain of a Country, and ill formed for Navigation. Nothing, then, but Canals can be effectual for inland Navigation* ; and yet I hope the Stream Navigation of the River *Thames* will never be forſaken : It was the Foundation of my

River *Thames* not be be forſaken.

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* This was the Opinion of the late Mr. *James Brindley*, the greateſt natural Mechanick, perhaps, that was ever yet born, and whoſe Death I conceive to be a greater Loſs to this Country than has ever happened, in the Perſon of one Man, to any trading Nation ; but his wonderful Works remain, and will be a laſting Monument of his unbounded Genius to future Generations ; his extraordinary, cheap, and truly mechanical Methods of Operation, can only be known to the few that have accompanied him in his Works ; amongſt whom, the preſent Caſe requires, that I ſhould make particular mention of Mr. *Robert Whitworth*, as he is the Perſon who executed the Plan now under Conſideration : He is naturally a good Mechanick, and is in Science, what Mr. *Brindley* was by Nature, being alſo indefatigably induſtrious, and a worthy, honeſt Man ; it is my Duty, in Juſtice to him, to mention thus much of his Character, having had him in my Houſe many Months, during the Execution of the preſent Work ; ſo that I have had ample Proof of what I aſſert in his Favour.

my Propoſal, on our laſt Application to Parliament, that the River ſhould be thus improved, at the Expence of whatever Canal ſhould be made collaterally with it; and this Thought, I hope, will be ſtrictly adhered to, by thoſe that may hereafter revive this Deſign of Navigation.

Neceſſity of Amendment.

This, then, is the preſent State of our Port, and upward Navigation; and it muſt, and will, according to the Nature of things, grow worſe and worſe, if we do not uſe ſuch Works of Art, as we have plentifully in our own Power, and ſuch as I will not fail to bring forward, whenever it ſhall ſeem to be a proper Time.

Canal to *Waltham Abby* will lead the Way to improve the Port.

The Canal now propoſed from *Moorfields* to *Waltham Abby*, will, ſome time or other, lead to the neceſſary Improvements above hinted at; and as the Court of Common-Council (it is with Gratitude and Thankfulneſs that I acknowledge the Favour they have been pleaſed to ſhew me) have always paid Attention to whatever Matters of this Kind I have hitherto had the Honour to lay before them, ſo I truſt they will alſo receive and encourage the preſent Propoſal of the *Waltham* Canal, if they ſhall find, on due Conſideration, that it is really capable of advancing the Trade and Happineſs of our great City, as well as the general good of the Commonalty at large, which Points I ſhall endeavour to demonſtrate; and theſe Motives will certainly be more active and engaging, now that the *eaſy Execution* of the Deſign is rendered apparent by an accurate Plan.

Communty

Generalrules in Canal Navigation to be obſerved.

The moſt eſſential Objects of Attention in making navigable Canals are, that they ſhall never be in Want of Water, nor ever have too much; neither be ſubject to the Inconveniences of Floods of any Kind; that the Surface ſhall be kept to an equal Height, neither varying, higher or lower, than its proper Mark; and the Excellence of the Artiſt is moſt ſhewn by preſerving the greateſt Number of Miles without riſing or falling. The Rule to effect this, is generally to take the Water from the higheſt Point, and continue that Level as far as it will extend, and then to lock down; but this, though certainly right in diſtant Countries, I muſt object to, ſo near the Metropolis.

Objected to near *London*.

Inducement for the preſent Canal.

A moſt deſirable Line.

If the New River (for Inſtance) from *Hertford* to *London*, had been made a Navigation, and this Rule obſerved, then there muſt have been a Lockage down of about ſixty Feet, or it could never be brought nearer to the City than *Iſlington*; the Neceſſity, then, at once appears for making the longeſt Level of the Canal near *London*, and with this View about two Years ago, I had the Level taken from the Quarters in *Moorfields*, to ſee where it would run into the River *Lee*, and to my very great Surprize, I found it extend no leſs than thirteen Miles and an half, *viz.* ſo near *Waltham-Abbey*, as to make that Place a moſt beneficial Point, for the Extenſion of the preſent Undertaking, through a pleaſant Part of the Country; through every capital Village in that Direction; and, indeed, the whole Line deſireable on every Account.

The preſent Time moſt proper,

to preſerve the great Opening into the City.

The preſent Time ſeemed moſt proper for bringing this Deſign forward, becauſe the Corporation of *London*, have lately renewed their Leaſe of the *Finſbury* Eſtate with the Prebendary of St. *Paul*'s, and are obliged by Act of Parliament, to build upon the *Upper* and *Middle Moorfields*; a Plan for which Buildings was brought before the Court of Common-Council on the 15th of *June* laſt: But as I apprehend that the preſent ſpacious Area of *Moorfields* from the Quarters to *Windmill-Hill*, is very ſerviceable to the Health of the City, as well as Convenient for the Citizens (that in their Walks, they may breathe the freſh Air of the Country, as ſoon as poſſible) I thought it my Duty to oppoſe the Plan then offered, and to lay before the Court this Deſign of a Canal, as a previous Conſideration; and the Court was then pleaſed to order the preſent Survey to be executed at the City's Expence.

The

Advantages

The Advantages of this Canal to the Metropolis at large are many and numerous ; and firſt, in point of Health.

of freſh Air.

No bad Smells.

Will have the Effect of a Running Stream.

Canals in *Holland* not ſweet.

When the old ruinous Buildings are removed at *Windmill-Hill*, there will be one grand Opening of 160 Feet wide (that is, the Canal 60, and an opening of 50 Feet on each Side) from the great Baſon in the Quarters, to the grand Baſon, or Port, near *Holloway-Mount*. The conſtant Motion of Veſſels upon the Canal wil occaſion ſuch a perpetual eaſy Stream of Water, ſometimes one way and ſometimes another, as cannot fail of producing a Circulation of Air more beneficial than any other opening can ; and as no Drains of Filth or Ditches of any kind are permitted to empty themſelves into any Part of ſuch Canals, (being always carried off by Culverts or Paſſages under them) there is no doubt, but the Water will preſerve itſelf as pure as when firſt taken out of the River : Neither can it ever have the common Effects of ſtanding Water, for it is well known, by Perſons converſant in ſuch Matters, that when a Veſſel paſſes through a ſtill Canal, ſhe will carry a certain Head of Water before her, according to the velocity with which ſhe moves ; and this forms a Stream, as it were; running before her, inſomuch that it is very eaſy to know, at ſeveral hundred Yards diſtance, when a Veſſel is coming up, though ſhe be not yet in Sight : And alſo, when ſhe has paſſed, you may perceive the Stream returning back again, for ſome Minutes after, till it recovers its natural Level ; ſo that a Canal (ſo much uſed as this will be) in effect will have the Advantage of a running Stream, for the Water will always be perfectly ſweet. I mention theſe Circumſtances by way of Anſwer to thoſe who may hnve formed an Idea of Canals from thoſe in *Hollund*, where, in ſome Seaſons, (it is certainly true) they ſmell very offenſively, and the Water is black and putrid, becauſe the Canals in that Country, being low, naturally receive the Drains of Filth and Soil from every Town that is ſituated upon them ! but the modern *Engliſh* Canals, which are raiſed (as I have before obſerved) above all Drains, *&c.* are not in the leaſt liable to any ſuch Objections.

Will reduce the Price of Proviſions.

Milk.

The Canal, now propoſed, will bring a continual ſupply of Proviſions of every kind, and is the only apparent Method, that can be likely to reduce the Price thereof in this great City. Even in the ſingle Article of Milk this new Communication will be exceedingly valuable to *London*, (which at preſent is but ill ſerved with Milk, both with reſpect to its Quality and Price,) for that neceſſary and wholeſome Viand may be brought, at a very ſmall Expence, twice every Day by this Canal, from Cows fed in Meadow Grounds and rich Marſhes, upon wholeſome Graſs, inſtead of Grains and Cabbage Leaves, at the Suburbs of the Town.

Garden Stuff.

Manure.

Gardeners Grounds, at a diſtance from Town, would afford a plentiful Supply of Greens and Fruits of every kind, in exchange for Manure, which would be carried out at a ſmall Expence.

Butchers Meat.

Cattle, *&c.* live.

Butchers Meat of all Sorts might be brought in from the utmoſt Extent of the Canal. Cattle might eaſily be ſlaughtered at a diſtance and brought to Market in Carcaſe. Accidents from driving would be thereby prevented ; and the Meat, not being heated by over driving, would the longer reſiſt Putrefaction. Nay, even live Cattle, both Sheep and Oxen, but particularly Calves and Hogs, and every other kind of Proviſion would then be brought in for a continual Supply, from the inland Parts of *Eſſex*, *Norfolk*, and *Suffolk*.

Corn, Flour, and Malt, would ſpeedily be tranſported from *Ware*, *Hertford* and *Biſhops-Stortford*; and the return of Coals and other Articles to thoſe Places would be moſt expeditiouſly forwarded to their mutual Benefit.

Fiſh.

Fiſh of various kinds may be bred in the Canal, as well as brought to it from other Parts, and kept in ſtore alive, for a regular Supply,

Loaded Waggons. may be brought in by Canal.

One Canal Boat would contain four broad wheel'd Waggons; which, by inclined Planes, might eaſily be roll'd into it; each of theſe, by Land, require eight Horſes to draw them; whereas one Horſe would bring ſuch a Veſſel as this, with four Waggons, from *Waltham-Abbey* to *London* in four Hours, ſo that it is evident, that the Labour of thirty-one Horſes would be ſaved; and if ſo, all the heavy Carriage from the North Road through *Hertford*; from *Cambridge*; from *Lynn*, *Norwich*, and many Parts of *Norfolk* and *Suffolk*, through *Eſſex* by *Waltham Abbey*, as well as whatever is brought down by the preſent improved Navigation of the Rivers *Lee* and *Stort* to this Place, muſt come through the preſent propoſed Canal.

Hay, Corn, Straw, Coals and Bricks, Stone, Chalk, Timber, *&c.*

Hay, Corn, and Straw, Coals, Bricks, Stone, Chalk, and Timber, *&c.* would be a prodigious Traffick upon this Canal; and indeed, almoſt any one of the Articles mentioned would, of itſelf, be ſufficient to defray the Expence of the Improvement.

Common Paſſage delightful.

The Conveyance of Paſſengers in Boats and Barges, neatly fitted up, with Accommodations of every Kind, would be a Matter of infinite Conſequence, both to the Rich and Poor of this great City: to the former a Scene of Pleaſure, Delight, and Profit; to the latter, Comfort and Reſt from their Labour, as well as Paſſage at a very low Rate, ſince Perſons may be expeditiouſly conveyed fourteen Miles and an Half by this delightful Communication, for the trifling Sum of 3d.

Utility demonſtrated.

If this be true, who can doubt the Utility of this Canal to the Community at large; and that it is true, will be demonſtrable to any one that will carefully examine the Plans, and what I have ſaid upon the Subject; for nothing will be ſuffered to obſtruct the Paſſage from End to End, by Night or Day; the Depth always the ſame; no waiting for Wind or Tide; no Floods; no Want of Water; a ſmooth Surface; no Currents to detain or delay; and that no Delays may ariſe to the common Paſſage, I have propoſed that no Veſſels ſhall be permitted to enter the Baſon in the Quarters, except Paſſage Boats, Gentlemens Pleaſure Boats and Barges, Milk Boats, and ſuch Veſſels as do not require Cartage, or make Litter in delivering their Loading; for this would interupt the Walks in the Quarters, which were originally deſigned and laid out, as Pleaſure Ground to the City, and may ſtill be continued as ſuch, with the Addition of the Canal and ornamental Baſon, whereby they will be rendered much more pleaſant and delightful than ever they were before.

Baſon in the Quarters.

Saving of Horſes.

The ſaving of Horſes and Horſe Provender will be of prodigious Conſequence to the Publick.

Fires.

This Canal will be one large Reſervoir, thirteen Miles and an Half long, always ready for extinguiſhing Fires, in any Part of the City; And

Sewers may be cleanſed.

Every Sewer in the City of *London*, may be cleans'd by Valves, whenever it is thought proper; but more eſpecially, when the River *Lee* is too much flooded, and when the taking off a Quantity of Water would relieve the Country below *Waltham-Abbey*, by drawing off a Part of the ſuperfluous Water,

City Eſtate and Prebend.

The Advantage gained to the City Eſtate, and the Prebendary of *Finſbury*, would be great; for though the Buildings to be raiſ'd might be very elegant without ſuch Canal, yet it is well known, that the Rage for Building is much abated, and that the Rents of Houſes are rather upon the Decline; ſo that, as the Neighbourhood and Parts adjacent (*Broad-ſtreet* excepted) are in general poor, it would not, in its preſent State, be a very deſireable Situation for Building; but the Canal will, at once, make every Inch of Ground truly valuable; and what is turned into Water will immediately pay an annual Rent, or its Equivalent, without any Expence to the City or Prebend; and the Houſes, as they riſe, will be deſireable to People of the firſt Faſhion, on Account of the delightfulneſs of the Situation, and to others for the Sake of Convenience, and the Advantages ariſing from Trade; ſo that it cannot be doubted, but that the Rents will be of the firſt Claſs, and ſuch as cannot be equaled in any Part of *London* or *Weſtminſter*, the Wharfs of the River *Thames* excepted.

Land-owners

The Advantages to more diſtant Land-owners will be proportionably great with the former; for Waſte Grounds will be improved; Fields will become Gardens; and the whole Line of the Canal may be conſidered *as Building-Ground*. And here it will be proper to mention, that every Land-owner may form (at his own Expence) whatever Line of Canal he may think proper, from the Grand Canal into his own Grounds, provided he is ſo far under the Regulation of the Truſtees of the Canal, that he may be reſtrained from expending the Water, and alſo provided he does not permit any Drain or Filth to injure the Purity of the Water.

to lock down at Lee Bridge.

The locking down into the River *Lee*, at *Lee Bridge*, as marked in the Plan by dotted Lines, will be very neceſſary at firſt, to preſerve the Communication with the *Thames* at *Limehouſe* and *Blackwall*, till ſome more extenſive Plan is formed for their Junction.

Canal Bridges occaſion no Delay.

No delay in the Paſſage will be occaſioned by the Bridges upon the Canal; for they will conſiſt of one Arch only, and muſt be formed with a *ſet off* on the towing ſide, a few Inches above the Water Mark, upon which the towing Horſe, with his Rider, trots through the Arch without the leaſt ſtop to the Veſſel.

Supply of Water very ſmall.

The quantity of Water neceſſary to be ſupplied from the River *Lee*, will be ſo ſmall, after the Canal is once filled, that it is ſuppoſed, it will be impoſſible for any Perſon whatever to be injured by it; (the Valves for waſhing the Sewers being intended to be uſed only at Times when there is a ſuperfluity of Water,) becauſe whatever Quantity of Water is received into the Canal more than ſufficient to keep it to an equal Height, will be diſcharged again at the regulating Lock, near the Place where it comes in; except at thoſe Times abovementioned, when ſome of it may, without Injury, be drawn off through the Valves to cleanſe the Sewers.

Expence of the Canal.

The Tonnage will raiſe per Annum

The Expence of carrying this Canal into Execution, according to Mr. *Whitworth*'s Eſtimate, is, £52495. Now £60,000. at Five *per Cent*, is £3000. *per Annum*; whereas, the Articles of Corn, Flour, Malt, Coals, and Proviſions, brought in by the *Tottenham* Road, and River *Lee*, upon the moſt moderate Calculation, according to the preſent Rate, without any Increaſe, and without reckoning Bricks, Hay, Straw, Timber, and other Things before-mentioned, amounts to 150,000 Tons *per Annum*. Now the Tonnage generally allowed, upon Canals of this kind, is 1½ *d.* a Ton *per* Mile; but ſuppoſe only an ½ *d.* to be the Tonnage upon this; 150,000 Tons at ½ *d.* will produce £4375. Annually, and this only *inwards*, but we may certainly preſume it will be full as much *outward*, which will double the Sum.

Satisfaction to intereſted Perſons.

No private Property ſhould be allowed in the Canal.

Money to be raiſed upon the Credit of the Tolls.

Free Navigation.

Thus at the *higheſt* Rate of Intereſt, and at the *loweſt* Rate of Tonnage, (for we have reckoned no more than what, even at preſent, comes in by Land, and the River *Lee*) we have £8750; *viz.* £5750 *per Annum*, more than wanted: So that we have it ſufficiently in our Power to make ample Amends to every Individual, that can have the leaſt Probability of being injured by this Deſign; and that there may be no intereſted Motive to the contrary, I humbly propoſe, that no private Property may be allowed in the Canal; and that the neceſſary Sums may be raiſed by redeemable Annuities upon the Credit of the Tolls, under the Direction of the Lord Mayor, Aldermen, and Commons of the City of *London*, in Truſt for the Publick; ſo that as ſoon as the Traffick ſhall have paid the Expence of the Work, and have accumulated a Fund for perpetual Repair, and alſo have made ample Satisfaction to thoſe that may be injured by it, that then the Tolls be taken off, and that the Canal (being laid open and rendered a free Navigation,) may be conſidered as the King's Highway, under the Regulation and Conſervancy, as I ſaid before, of the City of *London*, in Truſt for the Publick.

Example both of the Mode of Government and Manner of Execution

This, then, will at once be an Example, both of the manner of Execution, and the Mode of Canal Government, which may, by this means, be extended to the remoteſt Parts of this Iſland; and publick Bodies may eaſily be formed and incorporated for the like Purpoſes, whereby ſimilar Communications may be extended, by Degrees, into whatever Countries do moſt require them.

What Effect upon the Port of London.

Pool not ſufficient.

Let us now conſider what Effect the propoſed Canal will have upon our Port of *London*, and our Foreign Trade. I have already repreſented the miſerable Condition of our Port, and ſhewn, that it muſt continue to grow worſe and worſe, according to the Nature of things; for the Concourſe of Shipping reſorting to the Pool, are more than it can contain, and therefore all the Regulations in the World will be ineffectual. Now the Level of the propoſed Canal will be about thirty Feet higher than the Top of a common Spring Tide; ſo that it is poſſible to lock down into any Part of the River *Thames*, from *London Bridge* to *Blackwall*, or into any Part of the River *Lee*, from *Waltham Abby* to *Bromley*; but the moſt convenient Part would be from *Hackney* Turnpike into *Limehouſe Cut* (ſee *Whitworth*'s Report) whereby it would become the Intereſt of two or three hundred Sail of Colliers (which at preſent fill up the Pool) to lie near *Limehouſe* and *Blackwall*, and ſend up their Loading in Canal Veſſels, to the North Side of the Town, which would ſave the Labour of carting up the Hills.

More Room for Merchantmen.

This would leave Space and Accommodation for Merchant Ships, to bring their more valuable Commodities to their proper Moorings, and nearer to the Cuſtom-Houſe, without the Dangers before mentioned, which would be a great Advantage to the publick Wharfs, &c. on the Banks of the River.

Docks in the Iſle of Dogs. How at Liverpool.

Docks might alſo be formed on the *Iſle of Dogs*, between *Limehouſe-Hole* and *Blackwall*, like thoſe at *Liverpool*, where Veſſels are received (with the very Tide that brings them in from Sea) into ſtill Water; and they are handed in, or out, to, or from the Key, in the moſt ſtormy Weather, without Fear of Damage.

A ſmall Tonnage ſufficient.

A very ſmall Tonnage, on ſuch Ships as would chuſe to lie here, would be ſufficient for the Purpoſe I have now mentioned.

Another Plan to aſſiſt the Pool and upward Navigation.

But this is not all that may be done for the Port of *London*; I am of Opinion a leſs expenſive Method than this, would, in ſome Meaſure, anſwer the ſame Purpoſe.

The

Rapidity of the Tide ſhould be leſſened.

The great thing wanted is *ſtill Water*, or *Eddy-Water*, wherein Ships as well as ſmall Craft may lie in Safety, without being expoſed to the wear and tear of ſuch an immenſe Rapidity of Tide, paſſing and repaſſing *continually* up and down: If this conſtant Flux and Reflux could be leſſened, the Purpoſe would, in great Meaſure, be anſwered; and that this may eaſily be done, there is no Doubt.

London-Bridge may be made to anſwer this Purpoſe.

Every Lock a Lifting Lock.

If a certain Quantity of Tide is admitted through *London-Bridge*, it is plain that the ſame muſt return again towards the Sea, together with whatever is the natural Current of the River from above; and it would not be prudent to prevent the leaſt Part of the flowing Tide from running up, becauſe the Conſequence would be, that the Tide would not flow ſo far into the Country Weſtward; but the ſame Purpoſe may be anſwered by other means, *viz.* prevent ſo great a Quantity from going out; make every Lock of *London-Bridge* (except thoſe that belong to the Water Works) lifting Locks, which will enable all Veſſels, that can lower their Maſts, to paſs upwards or downwards, with or againſt the Stream, at all Times of Tide in perfect Safety, without any other Labour, than that of one Perſon to draw the Cloughs. By this means the Tide above might always be kept to a moderate high Water Mark, which would preſerve a level Water, perhaps as high as *Richmond*, at all Times; and the Arches of the Water-Works would, perhaps, be ſufficient to take off the natural River Stream. The flowing Tide would open all thoſe Locks, as ſoon as it roſe higher than the Level of the Water above, ſo that it would find a free, uninterrupted Paſſage *upwards*, conſiſting of the whole Depth of the preſent Channel; whereby the full Force and Power of the Tide would be admitted, for the Benefit of the Country above, and with this additional Advantage, that as the Tide would find ſo large a Body of Water already there, it would of Courſe flow much ſooner, and conſequently much higher and farther into the Country than at preſent; ſo that it might, perhaps, recover its ancient Progreſs to *Teddington* or *Kingſton*; the Banks above Bridge would be always full; no muddy Banks, or ſtinking Shores, would annoy the neighbouring Habitations; Wherries and ſmall Craft, of every Kind, would have an Eddy-Water, very advantageous for paſſing upwards againſt the Stream, which, in ſo broad a Channel, would occaſion but ſmall Reſiſtance, and that ſuch as might generally be avoided, by means of the Eddies above-mentioned.

Benefit to the Bridge Water Works, and to the Bridge Eſtate, by the great Saving in the Repair of the Sterlings.

The Bridge Water-Works would have a larger Fall, and of Courſe greater Power of working; and they would alſo be enabled to work more Hours than at preſent. When ſo large a Flux and Reflux of Tide ceaſes to be *continual*, an immenſe Expence will alſo be ſaved in the Repairs of the Sterlings, the *conſtant Wear* being leſſened.

Benefit the Pool

And below Bridge, the Effect in the Pool would be, that Ships would not be expoſed to ſuch conſtant wear and tear; the flowing Tide would only fill, and gently riſe, till it came to the Height of the upper Water, and then it would flow. In the Ebb, the Effect to the Port would be equally convenient; for the Water would gradually fall, after it deſcended below the Level of the Locks, ſo that little more than the natural River would, afterwards, be permitted to paſs downwards. Thus both the riſing and falling Tide, for the greateſt Part of the Time, would be gentle, and the Current eaſy. This Alteration would, in great Meaſure, remedy the Evil complained of; and the Execution of the Project is eaſy.

Canal from *Lambeth* to *Deptford*.

But a much more advantageous Work might be brought to bear, by thus forming the Dams at *London-Bridge*. A Canal might be brought from *Lambeth* to *Deptford*, which would always be Level with the upper Water, and might be made of large Dimenſions, ſo as to admit Veſſels of conſiderable Size. By this means all ſuch Boats or Veſſels, coming from *Graveſend*, *&c.* if they could ſave their Tide ſo high as *Deptford*, might lock up into the upper Level, through this Canal, to *Weſtminſter* and *London*. This at all Times would be paſſable, up or down, in ſtill Water: Beſides, an aditional Quantity of Tide might be admitted upwards, through this Cut, for the Purpoſe of making it flow as far Weſtward as poſſible.

What! Stop the Tide at *London-Bridge!* It contradicts a Proverb! It is impoſſible!

Examples of Locks to ſtop the Tide.

Nevertheleſs, Works of this Kind are common, even in many Parts of *England*, and ſome of them much greater than this will be; witneſs ſome Parts of *Lincolnſhire* and *Norfolk*, as at *Denver Sluice*, and *Salter's Lock*, where much greater Bodies of Water are reſiſted, even the Tide itſelf, and that very near the Sea, is prevented, by Sluices, from entering the Fens; We have Examples before us; it is neither difficult nor expenſive; and if any Inconvenience that cannot be foreſeen, ſhould ariſe, the Gates may eaſily be removed, and no Injury be incurred by the Experiment.

Canal from Marybone.

I come now to ſpeak of the Plan of a Canal from *Marybone* to *Moorfields*, by the North Side of the Town. This Plan was executed at the Deſire of a very worthy and reſpectable Member of the Common Covncil, in Caſe a former Propoſition of Canal from the River *Coln*, near *Uxbridge*, to *Wellings Farm* at *Marybone*, ſhould ever be revived; but this is no Part of the preſent Propoſition; for it can never be carried into Execution, except the firſt Deſign of a Canal from *Uxbridge*, or ſomething of that Kind, takes place; and if ever it ſhould, the preſent Plan will ſhew how it may be continued, to join the now propoſed Navigation in *Moorfields*.

The Level forms an eaſy Bend from *Welling*'s Farm, by *Hampſtead*, and *Kentiſh Town*, to *Iſlington*; where it croſſes the *New River*; being about ſix or ſeven Feet higher than the ſaid River; and from thence it locks down to the Level of the preſent propoſed Canal, as may be ſeen by the Plan. The vaſt Supply of Water that might, by that Means be thrown to every Part of *London* and *Weſtminſter*, would be truly valuable to the Publick; and as a Navigation, the Work would be doubly valuable; for I find upon Examination, that a Level may be brought even from the River *Thames*; for *Bolters Lock*, above *Maidenhead*, is nearly level with *Marybone* Turnpike Gate; and this Gate is not many Yards diſtant from the Point at *Welling*'s Farm, from whence the Plan now laid before you is continued; but it is fourteen Feet lower; nevertheleſs, it will be very eaſy to riſe theſe fourteen Feet by the Banks of the River *Coln*.

A higher Line may be found.

But I am further of Opinion, that a higher Line might be found, which would be ſtill more advantageous; for this Level of fourteen Feet higher might be gained, by bringing the Canal from the River *Kennet* near *Reading*, to be continued afterwards by an Aquaduct over the River *Thames* near *Bolter*'s, by which Means, one ſingle Level might be preſerved from *Reading* to *Iſlington*. This Propoſition may appear romantic and impracticable to Perſons who have not been converſant with Works of this ſort, but, I am nevertheleſs confident that it may eaſily be done; and if it can, why may it not be continued by the Line of the *New River* to *Hertford?* I apprehend it eaſily may, for I am informed, that the *New River* falls about four Inches in a Mile, ſo that, if it was to be formed into a Navigation, the Level would be nearly equal to the *Marybone* Line.

Reading to Hertford Level.

Thus we ſhould have one ſingle Level from *Reading* to *Hertfort*, near ſeventy Miles, paſſing by the North ſide of *London* and *Weſtminſter*; watering thoſe noble Cities with a ſufficient and conſtant Supply of that neceſſary Element, and uniting with the River *Thames*, in as many Places as may be required.

New River Company how to be recompenced

But what, then, is to become of the *New River* Company, which muſt be injured by ſuch a Scheme as this? I anſwer, that if my Propoſal, in the lower Line from *Moorfields*, ſucceeds as to the Mode of raiſing the neceſſary Fund, and making ample Reſtitution to injured Property, it will be an Example eaſy to be followed; and the *New River* Company may as eaſily be indemnified their Loſs as any publick Body, or even private Perſons whatever. If we do not this, I ſhall, for my own Part, deſire to withdraw theſe Propoſitions, and ſhall be ſorry that I have laid any ſuch Matters before the Common Council; for my whole Deſign, I truſt, is formed as well for the Benefit of the Community at large, as of this great City, of which I have the honour to be a Member, and which I am ſworn to aſſiſt to the utmoſt of my Power. It would, therefore, ill agree with this Intention to bring a Hardſhip upon any Individual, and much leſs upon a publick Body, wherein ſo many Individuals are concerned.

Canals beneficial to the Coaſting Trade.

Beneficial to the Coal Trade.

The only Objection, then, that remains, and ſeems to be of any Weight, is, that Canals will hurt the Coaſting Trade, and, of Courſe, Effect our Nurſery for Seamen. If this were true, it would be a ſufficient Reaſon why no ſuch Deſign ſhould be encouraged; but I truſt there is not the leaſt Foundation for the Objection, and that the very reverſe will happen; for, in the firſt Place, Freight by Canals in their greateſt Perfection, even without Tolls, can never be afforded ſo cheap as Coaſtwiſe; and moſt Canals are, and will be, formed from inland Parts, to the neareſt Sea-Port; by which, of Courſe, the Supply of heavy Carriage to ſuch Ports, is encreas'd; and the Exportation from thence, either Abroad or Coaſtwiſe, is certainly augmented; or elſe why are the inland Commodities brought thither? But the Coal Trade in Particular, as well as all other Coaſting whatever, are amazingly encreaſed by ſuch Improvements; for it is not the Coal Trade to *London* alone, which is to be conſidered; but that alſo which will of courſe be enjoyed by any other Port, that avails itſelf of inland Navigation by Canal: For the Conſumption of Coals will always leſſen or encreaſe in Proportion as Coals are afforded dear or cheap; becauſe if Coals are dear, the Rich burn them ſparingly, and the Poor *ſtarve* for want of them; but if cheap, the Rich are profuſe, and the Poor enjoy one of the greateſt Bleſſings we can deſire, to ſoften the Inclemency of our Climate for ſeveral Months in the Year.

Manufactories promoted

Newcaſtle Coals prefer'd.

And if Canals were more numerous, Manufactories would, of courſe, ariſe in inland Countries, that muſt be ſupply'd from the neareſt Ports, becauſe *Newcaſtle* Coals would always have the Preference (on Account of their ſuperior Quality) to every other kind of Coals.

Foreign Trade increaſed.

The Nurſery for Seamen encouraged.

Chineſe how benefited by Canals.

Now if I have already proved, that Canals muſt produce inland Trade, and that our Manufactories muſt thereby be encreaſed, and of courſe be rendered cheaper; it muſt neceſſarily follow that our Foreign Traffick will be encreaſed alſo; how then can the Nurſery for Seamen be injured? Will it not produce the direct contrary Effect? It certainly will: The Cauſe that has produced one uniform Effect from the earlieſt Ages, may reaſonably be preſumed to produce the like Effect to the lateſt Period of Time. *China* bears ample Teſtimony of this: It is rendered by Canals, "the moſt fruitful and "moſt beautiful Country in the World." *(Le Comte's* Memoirs, 103.) The *Chineſe* have Canals of "above a Thouſand Miles extent. *(Du Halde*, p. 2.)

"Their Canals are managed with the greateſt Advantage to the Publick; "inſomuch that one may paſs from *Canton*, the moſt Southern City, to *Peking* "the moſt Northern." *(Du Halde*, p. 25.

Trade.

“ Their Trading lies within themſelves, from one Province to another, “ which, like ſo many Kingdoms, communicate to each other their Riches (*Le* “ *Comte*, p. 289.)

Barks.

“ Their Canal Veſſels are of a prodigious Size, equal to our Ships; the “ Emperor has about ten thouſand of them always ready for Service, (*Le Comte*, p. 233)

“ But that which moſt charms the Eye, is the infinite Number of large and “ beautiful Imperial Boats, which ſail in numerous Fleets, under the Com- “ mand of a ſingle Mandarine, loaded with the beſt Productions of different “ Provinces.” (*Du Halde*, p. 26.)

Commodious

“ The Boat we went on Board of, though but a third Rate, was very large, “ and extremely neat and commodious; we had a Hall and four convenient “ Rooms, without reckoning the Kitchen, and the Place where our Attendants “ retired upon the ſame Deck. Every Room was adorned with carved Work, “ painted and gilt; the reſt was beautifully varniſhed, and the Ceiling painted “ after the *Chineſe* manner. (*Da Halde*, p. 77.)

Burthen.

“ We have ſeen ſome of theſe Boats of the Burden of about two Hundred “ Tons, much more commodious for the Reception of intire Families, than “ moſt of their Houſes; there were at leaſt four Hundred in the Canal we “ ſailed in.” (*Du Halde*, p. 77.)

Number.

“ The Number of them kept at the publick Expence is about ten Thou- “ ſand.” (*Du Halde*, p. 26.)

Fertile.

China, by Canals is “ rendered the moſt fertile and pleaſant Country in the “ World.” (*Du Halde*, p. 79.)

Cities.

The Cities of *China* are immenſely large and populous, “ and what is ſur- “ priſing in *China* is, that whereas, being gone through one of their Cities, you “ would ſcarce expect to meet with the like, you are hardly out of ſight of “ it, before you are in View of ſuch another.” (*Le Comte*, p. 83.)

People.

“ The Fifteen Provinces (of *China*) contain, 2357 fortified Towns
10,128,789 Families
58,916,783 Men.” (*Le Comte.*)

120 Millions

Other Authors affirm, that *China*, at this Day, contains 120 Millions of proſpering Inhabitants.

Coaſting Veſ-ſels innumer-able.

That their Veſſels for *Sea Navigation* in the Mouths of all their great Rivers *are innumerable*, (ſo that it is manifeſt, the Nurſery for Seamen is not hurt by Canals) and that their Coaſting Trade is of a prodigious Extent, is allowed by all People: Whence think you then, does this ariſe? Is it not evident that it proceeds from their inland Proſperity, which may fairly be attributed to their eaſy and delightful Communications through every Part of that vaſt Empire, and the excellent Effects attendant on this Mode of Communication? inſomuch, that it would be almoſt endleſs, were I to enumerate the peculiar Benefits of them; but a few of the Principal muſt not be paſſed over.

Cultivation by watering.

The Earth by Culture is capable of ſuſtaining, perhaps, ten Fold the Number of its preſent Inhabitants; and nothing contributes ſo much to its plentiful Production as watering the Grounds and Meadows at proper Seaſons. *China* bears ample Teſtimony of this; the Rivers, Lakes, and Canals, “ wherewith

“ this

in *China.*

“ this Country is watered, and the Eaſe with which the Huſbandmen convey “ the Water into their Ground, renders the Soil rich and fruitful, inſomuch “ that there is no fear of Famine in Seaſons of the greateſt Drought.”

in *Wiltſhire, &c.*

This kind of Cultivation, indeed, is not entirely unknown in *England*, for in many Parts of *Wiltſhire* and *Somerſetſhire*, the Farmers underſtand it well, and their *Water Meadows* are exceedingly valuable.

Advantage of watering by Canals.

What think you then, will be the Conſequence if ever the Whole of what I have hinted at ſhould ſucceed? *A Canal upon one ſingle Level, ſixty Feet broad from* Reading, *by the North ſide of* London *to* Hertford; an Extent of about Seventy Miles, and this about ninety Feet higher than the River *Thames* at *London*, not only the Fields, but every Garden and every Houſe in that Line might be ſupplied with any Quantity of Water that ſhould be thought neceſſary.

Objection anſwered.

Perhaps it may be objected, that if a Bank ſhould break upon this Canal, where ſuch an immenſe Body of Water is contained in one Line, the Country would be drowned; but ſuch Objections as this come only from thoſe that have never ſeen ſuch Canals, or from ſuch Engineers as know not the proper Method of carrying them into Execution. The great *Brindley* foreſaw that it was poſſible for ſuch an Accident to happen, and therefore his firſt Care was to guard againſt it; this he did by placing, what are called Stops, at proper Diſtances; and thoſe in many Places, where ever the Canal was carried above the Level of the Ground. Theſe Stops are Wooden Doors or Gates, which lye under Water upon the Bottom of the Canal, and which would immediately be raiſed up by the Current, if a Breach ſhould happen; whereby they form ſuch an effectual Dam, as to prevent any more Water being loſt than what is contained between Stop and Stop.

Stops.

what they are.

Puddleing.

And here I cannot forbear mentioning Mr. *Brindley*'s valuable Diſcovery of making almoſt any Soil whatever, reſiſt and retain Water as well as Clay. This is called Puddleing, which, as well as being ſo intrinſically valuable, becauſe effectual, is yet in itſelf the moſt cheap, eaſy, and expeditious Manner of performing the Work; but to deſcribe it here would too much lengthen the preſent Treatiſe.

Fiſheries may be improved.

I come now to ſpeak of the great Advantage that might be derived to the Publick, by a proper Management of our inland Fiſheries, if Canals were general.

How in *China*

The *Chineſe* have regular Markets at a particular Seaſon, “ to purchaſe the “ Spawn of Fiſh, which (by Canal) is conveyed into divers Provinces, to “ ſtock their Ponds and Pools: In a few Days the young Fry begin to appear “ in little Shoals, but the different Kinds cannot be ſo ſoon diſtinguiſhed. “ The Advantage, they reap from this, is vaſtly more than the Expence they “ are at, for the common People live much upon Fiſh. *Du Halde*, 27.

How the Fiſheries in *England* may be improved.
Salmon.

Now there is no Doubt but that the Fiſheries in *England* might alſo be much improved and rendered of infinite Conſequence to the Publick. One Branch in particular, of this Article, I can point out, and that is the Improvement of the Salmon Fiſheries. It is well known that ſome of them are much upon the decline, and are almoſt exhauſted; which Deficiency ſeems to be occaſioned by the great Difficulty the Fiſh meet with, in their Return from Sea to the Banks of the Rivers, where they ſpawn; and to the too great Covetouſneſs of the inconſiderate Lock Owners, who have it in their Power to take them every one as they come up; whereas, if they would permit greater Numbers

bers to paſs upwards, in order to lay their Spawn, the Conſumption and Profits might be an hundred times as much as at preſent; for the natural Increaſe of theſe Fiſh is prodigious, and beyond all Conception. I have been aſſured, by thoſe that knew it well, that the young Fiſh which were only a few Inches long when they went down to the Sea (for they have been taken and marked before they went) have returned again the ſame Seaſon, ſo enormouſly encreaſed, as to weigh fifteen or ſixteen Pounds, the identical Fiſh being known by the Marks given them before they went to Sea. Now if the Breeders (for they are well known by Perſons uſed to them) were forwarded by Canals to the Heads of their reſpective Rivers, what might we not expect from their Increaſe?

Antiquity in *China*.

That Canal Navigations are of very great Antiquity, may eaſily be ſhewn; and alſo, that almoſt all flouriſhing Nations have had them, in the Time of their Proſperity; but the Canals of *China* are ſuppoſed to be the moſt ancient.

in *Egypt*.

Nevertheleſs, the Accounts of the Antiquity and Extent of the *Egyptian* Canals are more certain and Clear, “ that thoſe Nations (ſays *Dugdale*, p. 1.) “ be of the greateſt Antiquity, and in chief Renown for Arts and Civility, are “ alſo famous for their Works of this Nature, is evident, from the Practice “ of the *Egyptians*, *Babylonians*, &c. their Workmanſhip about the River “ *Nilus* being ſuch, that Induſtry ſurpaſſed Nature; for *Egypt*, though naturally “ fruitful, being watered is more fruitful.” (*Strabo*, lib. xvii. p. 787, cited by *Dugdale*.) By the riſing of the *Nile* they foreſee Plenty or Want; “ at twelve Cubits they foreſee *Famine*; at thirteen, *Hnnger*; fourteen bring “ *Mirth*; fifteen, *Security*; Sixteen, *Plenty*. *Plin.* v. 9. See *Dugdale*, p. 1.

At the City *Phacuſa* “ began a Canal, called *the Canal of the Kings*, from “ the *Peluſian* Branch to the *Red Sea*. This great Work was begun by “ *Seſoſtris*, King of *Egypt*, and finiſhed by *Ptolomey Philadelphus*. This Canal “ was 100 Cubits in Breadth (*viz.* about 183 Feet, reckoning the Cubit at “ 22 Inches) and of ſufficient Depth to bear the largeſt Veſſels.” Univerſal Hiſtory, vol. 1. p, 410.

“ This Iſland of *Egypt* towards the Sea, between the *Peluſiaque* and *Canobique* “ Channels, is called *Delta*; there are ſundry Water-Courſes and Iſlands, ſo “ as one Channel being cut into another, it is navigable every Way. *Strabo*, p. 788. See *Dugdale*, p. 2.

Hence was this Kingdom more populous and wealthy than any other Country of the ſame Dimenſions, perhaps, ever was; for “ there were numbered in *Egypt*, “ Cities and Towns of Note, eighteen thouſand.” *Diodor. Sic.* See *Dug.* p. 4.

“ Under *Amaſus*, there were twenty thouſand Towns in *Egypt* inhabited, “ and under *Ptolomy* the firſt, above thirty thouſand.” *Herod*, l. ii. c. 177. See *Dugdale*, p. 4.

England.

And even *England* has formerly availed herſelf of this Mode of Navigation; for in the Time of the *Romans*, when *York* was the great Emporium of *England*, they were ſupplied with Corn and other Proviſions from all the Inland Counties of *Norfolk*, *Suffolk*, *Cambridge*, *Huntingdon*, *Bedford*, *Northampton*, *Nottingham*, &c. by means of the *Car Dike* and *Foſſe Dike*, through *Lincolnſhire* to the *Humber*, and again through the *Foſs*, from thence to *York*, and even as high as the more Northern Station of *Aldborough*, near *Boroughbridge*. See a Letter from the learned Dr. *William Stukely*, printed in *Drake*'s Antiquities of *York*, p. 38; Alſo *Drake*'s Remarks thereon, p. 42.

Lifting Locks not known in *China.*

If Works of this Kind could be made convenient and beneficial to Communities in antient Times, when the Level could not be changed, without the Labour of dragging the Veſſels againſt prodigious Torrents, by Dint of Force and Machinery; (which is the Caſe at preſent on many Parts of the River *Thames*;) how much more beneficial and profitable muſt ſuch Works be, now that the eaſy and expeditious Method of raiſing and advancing Veſſels of Burthen, from Level to Level, by *Lifting Locks*, is improved to the moſt deſirable Perfection; whereas, even to this Day, in *China*, where the Profitableneſs of their Canals is ſo apparent, they are ſo far from enjoying this admirable Improvement of *Lifting Locks*, that the Bark which is required to exchange the Level ſhe is in, muſt be drawn up, and launched again upon inclined Planes formed of Stone, at a great Expence, for that Purpoſe, and where the lifting of every Veſſel requires incredible Labour, and the united Force of Numbers of Men, who wait for that Purpoſe (ſee *Du Halde*, p. 27 and 72.) whereas the eaſy Labour of a ſingle Man is ſufficient to raiſe the largeſt Veſſel by a lifting Lock.

How improved in *England.*

Shall we, then, who are poſſeſſed of ſuch eaſy Means of raiſing and lowering Veſſels of Burthen by Locks, be diſcouraged with the Thoughts of Difficulty and Expence, when we have the Means ſo plentifully in our own Power, and when the Produce of ſo very ſmall a Toll will ſo much overpay the Expence, as to exceed all Expectation? Although we are late in entering upon the Execution of ſuch Works, yet I truſt we ſhall be as diligent, at leaſt, in the promoting and Execution of them, as any other Nations have been.

Incitement to Induſtry.

Want and Beggary produce Idleneſs and Sloth. Have we not Thouſands of People in different Parts of the Kingdom almoſt periſhing in the moſt deplorable Indigence? Are they not Starving for want of Food, Fuel, and Cloathing? Will not our own Country afford a ſufficient Supply of all theſe? Hence the Riots, Robberies, Thefts and Murders ſo common amongſt us! What then is wanting, but a new inticement to Induſtry? And this cannot be promoted without an immediate Reward for Labour. No Man will Work without ſome return for it; and none, that are really in Want, will refuſe to Work, when aſſured of a Reward for ſo doing.

Hit upon by *China* and *Holland.*

The Inhabitants of *China* and *Holland* are induſtrious, becauſe they have hit upon the moſt effectual Method to make Men ſo; and any Nation bordering upon the Ocean, may derive the like Proſperity by the ſame Means.

Source of Induſtry commended.

Canals, therefore, by the undeniable Example of theſe two Politick and Trading Nations, are known to be a true Source of Induſtry; for they bring a Market to every Man's Door; a due Reward in exchange for his Labour. Induſtry is the Parent of Riches, it is as well a Bleſſing, as a Duty to Man: It incites Man to Commerce, and the Love of his Neighbour, whereby the great Command of God, is fulfilled! The Sum of the whole Law; By Induſtry Men are diſpoſed to be of a better Mind; for no one could be prompted to live by Robbery and Theft, if he were well aſſured of a ready Reward for his Induſtry.

Communications by Roads and Canals the ſure Means of procuring Plenty.

It is evident, then, that eaſy Communications, as well by Land as Water, are the moſt apparent Means of reducing the Price of Proviſions, and of relieving our neceſſitous Poor, in every Part of the Kingdom, as well as in our own great City.

Roads improved.

An Amendment of the Roads I have attempted by a general Reform of heavy Carriages, and have had the Satisfaction to find, that the Means I propoſed of Rolling Carriages are abſolutely effectual to my Purpoſe, of giving

Roads

Roads all the Perfection that Land Communications are capable of, and are beſides as advantageous to the Uſer, even in the preſent unimproved State of the Roads, as any other kind of Carriages. I have, nevertheleſs met with more Oppoſition and Difficulties in this Matter, than can be eaſily conceived: whereas, if the Scheme was encouraged as it juſtly deſerves, I doubt not, but that the general Face of our Roads throughout the Kingdom, would in a few Years demonſtrate the Utility of this Plan, which I have elſewhere explained more fully: and I truſt alſo, that the general Deſign of Canals here laid down, (which is infinitely of more Conſequence) will ſucceed, when the Publick have had Demonſtrations of their Utility by the preſent Line being carried into Execution to *Waltham Abby*.

I have already been led to extend this Letter to a much greater Length than I intended, or perhaps ought to have done; but the importance of the Subject ſeems to demand it; and indeed, I am ſo little uſed to Write upon any Subject, that it is not eaſy for me to convey my Meaning in few Words; nevertheleſs if what I have ſaid ſhould in any wiſe tend to explain or promote the preſent Plan, I ſhall think my Labour well beſtowed; and even if it ſhould prove otherwiſe, this Attempt will at leaſt bear Witneſs of my earneſt Deſire of being ſerviceable to the Publick.

Dr. *Worthington.*

The learned Dr. *Worthington*, in his Scripture Theory of the Earth, has a very remarkable Paſſage, which I ſhall beg Leave to recite in his own Words; though I do not inſert it here on a Suppoſition, that the ſeveral Propheſies, to which he refers, have their ultimate Completion in any ſuch temporal Works as theſe; yet, as there is, at leaſt, a *literal Agreement* in his Compariſon, we may ſafely conclude with the worthy and learned Author, that the *Figures*, or Expreſſions, which he has cited "*ſeem to point at*" ſuch *Improvements* as he there mentions: or rather, (we may ſay) that ſuch unexpected modern *Improvements* render thoſe Prophetical Figures or Types more ſtriking and intelligible, than (perhaps) they have hitherto been, and conſequently more comprehenſive and deſcriptive of ſome very important Accompliſhment, though the ſame may be of a much more ſublime and ſpiritual Nature: "There are," (ſays Dr. *Worthington*) "ſeveral Prophecies in *Iſaiah*, "which ſeem to point at ſome *Improvements* which are actually carrying on at "this Time. What think you of the following Paſſages? *In the Wilderneſs ſhall* "*Waters break out, and Streams in the Deſert; and the parched Ground ſhall become a* "*Pool, and the thirſty Land, ſprings of Water.*" Iſai. xxxv. 6, 7.

"*I will open Rivers in the high Places, and Fountains in the midſt of Valleys:* "*I will make the Wilderneſs a Pool of Water, and the dry Land ſprings of Water.*" (Jer. xli. 18.)

"*Behold, I will do a new Thing: Now it ſhall ſpring forth, ſhall ye not know* "*it? I will even make a Way in the Wilderneſs, and Rivers in the Deſert!*" (Jer. xliii. 19)

"And what think ye of theſe vaſt Undertakings, (ſays the Dr.) which have "been for ſome Years of late, and ſtill are, carrying on in this Kingdom, of opening Canals, and Floods of Water; not only for Pleaſure and Ornament, but for "the Uſe and Benefit of Navigation; and carrying theſe artificial Rivers acroſs "other Rivers, through Mountains, and Rocks, and Moraſſes, and various other "Places, which ſeemed to forbid the Attempt: But which yielded to the Skill "and Contrivance, and indefatigable Induſtry of *one Man**? With ſuch a "Pattern before their Eyes, what may not Poſterity attempt? Is not this "doing *a new Thing? Opening Rivers in high Places*; in the very Heart of "them: And *Fountains in the midſt of Valleys*, in the very Depth of them; "where they do not naturally ſpring? This ſeems to be not only controuling, "but even reverſing Nature's Laws."

" *I will*

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* Mr. *Brindley*.

“ *I will open Rivers*, ſays the Almighty. What he doth by the inſtrumen-
“ tality of Men, he doth by Himſelf. It is He that *giveth Wiſdom to the Wiſe.*
“ *I will make a Way in the Wilderneſs*; and Ways have been made in Wilder-
“ neſſes.”

Upon the Whole, if what I have advanced appears to be founded in Truth, (and there ſeems a reaſonable probability of Succeſs;) ſhall we delay ſetting heartily about this deſirable Work? Shall we forbear to receive, and to impart the Bleſſings attending the Execution of it? I truſt we ſhall not. It is our Duty; it is Juſtice; it is the greateſt of all Charity, to impart to Man the Means of earning his Bread; it is Charity to our Country; it is Charity to Mankind.

But it is needleſs for me to ſay more on this Head; the Citizens of *London* have always nobly ſtood forth the foremoſt to promote good Works for the Benefit of the Kingdom at large; and, as a Member of that Body I truſt, we ſhall perſevere, that we may derive Wealth to ourſelves by ſupplying the reſpective Wants of others.

I am, with the greateſt Reſpect,

My Lord and Gentlemen,

Your moſt Obedient,

And moſt Humble Servant.

JAMES SHARP.

Leadenhall-Street, London,
December 22, 1773.

TO THE
Right Hon$^{ble.}$ the LORD-MAYOR,
THE
Worſhipful the ALDERMEN,
AND
COMMON-COUNCIL,
OF THE
CITY of *LONDON.*

MY LORD and GENTLEMEN,

IN my late Addreſs to the Court of Common-Council, reſpecting a Canal from *Moorfields* to *Waltham-Abbey*, I have endeavoured to point out ſome of the principal Benefits that I apprehend will ariſe from this Canal to the Publick at large, and to the City of *London* in particular; and I ſhall think myſelf exceedingly obliged to thoſe Gentlemen that will carefully examine and conſider what I have there ſaid; for then not only the Utility of it, but alſo the Neceſſity of carrying it into Execution, I truſt will fully appear.

The only Queſtion of Doubt, that can reaſonably ariſe upon it, is, whether the Tolls collected may be ſuppoſed to be adequate to the neceſſary Expence? Mr. *Whitworth's* Eſtimate is £52,495, which I firmly believe will be fully ſufficient; for even in this Eſtimate the Sum of £4772 is allowed for unforeſeen Accidents, and temporary Damages; nevertheleſs in Page 6, I have ſuppoſed £60,000 to be the Sum, which at 5 *per Cent.* would be £3000 *per Ann.* I have alſo ſuppoſed that 150,000 Tons will paſs upon this Canal, which I really believe to be much within Compaſs; and in Page 7 I have ſhewn that this Calculation will produce £8750 *per Ann.* whereas the Sum required is but £3000, whereby it appears that we ſhall have a Surplus of at leaſt £5750 *per Ann.*

But if it ſhould be ſuppoſed that the Expence will amount to £100,000, or £5000 *per Ann.* according to the ſame Rule we ſhall have a Surplus of £3750 *per Ann.*

Or if it ſhould be ſuppoſed that I have eſtimated the Tonnage at too much even by half, we ſhall ſtill have more than ſufficient; for 75,000 Tons at the ſame Rate, produces £4375 *per Ann.* which is £1375 *per Ann.* more than is wanted.

Now if it were poſſible that we ſhould ſtill have erred in theſe Suppoſitions, and that the Tonnage ſhould not amount to 75,000 Tons, there will be no Injury done to the Publick if the Rate of Tonnage be ſet at 1*d. per* Mile, which will double the Sum throughout the whole Calculation.

To

To this, alſo, a Toll upon Paſſage-Boats, Milk-Boats, Gentlemen's private Boats and Barges, might alſo be added without an Injury; yet if the Tolls on heavy Craft ſhould be thought ſufficient to pay the Expence, and render the Navigation free in a few Years, it will certainly be much more convenient for the Publick, that ſmall Craft ſhould be permitted to paſs Toll-free, even from the very firſt.

But I do not in the leaſt admit or believe that the Expence will be more, or that the Tonnage will be leſs, than my firſt Propoſition.

For the more eaſy Conſideration of this Matter I have added hereto a Table of Tonnage, at an ½*d.* 1*d.* and 1½*d.* *per* Mile, together with the Surplus and Deficiency attending the ſame.

I am, with the greateſt Reſpect,

MY LORD and GENTLEMEN,

Your moſt obedient, and

Moſt humble Servant,

JAMES SHARP.

Leadenhall-ſtreet,
Jan. 29, 1774.

Tons per Annum.	*Toll per Ton per Mile.*	*Amount for 14 Miles.*			The Intereſt of £60,000, at 5 *per Cent.* is £3000, ſo that there would be				
75,000	½*d.*	£2187	10	0		£812	10	0	deficient.
	1	4375	0	0		1375	0	0	Surplus *per Ann.*
	1½	6562	10	0		3562	10	0	Surplus *per* ditto
100.000	½	2916	13	4		83	6	8	deficient.
	1	5833	6	8		2833	6	8	Surplus *per Ann.*
	1½	8750	0	0		5750	0	0	Surplus *per* ditto
125,000	½	3645	16	8		645	16	8	Surplus *per* ditto
	1	7291	13	4		4291	13	4	Surplus *per* ditto
	1½	10937	10	0		7937	10	0	Surplus *per* ditto
150,000	½	4375	0	0		1375	0	0	Surplus *per* ditto
	1	8750	0	0		5750	0	0	Surplus *per* ditto
	1½	13125	0	0		10125	0	0	Surplus *per* ditto